



Re: Fw: Ra-226 results for 920 S. St. Francis Street

Michael Beringer to CharlesA Hooper

Cc Randy Schademann

06/02/2009 11:50 AM

History This message has been replied to.

An excess lifetime cancer risk greater than 1E-04 would justify taking a time-critical removal action.

CharlesA Hooper/R7/USEPA/US

CharlesA
Hooper/R7/USEPA/US
06/02/2009 11:46 AM

To Randy Schademann/SUPR/R7/USEPA/US@EPA, Michael
Beringer/R7/USEPA/US@EPA
cc

Subject Re: Fw: Ra-226 results for 920 S. St. Francis Street

I guess one of the things we should decide on is whether to include a risk estimate or not? If you really need one I'm getting 1.5E-3 using the 495 pCi/g value, but that's with tweaking some of the defaults in the radiation prg calculator page. If you just use defaults and assume the radium daughters are in secular equilibrium as they should be you'd get a calculated risk of 4.0E-2. Some of the things updated to get that number is no child exposure, only a small amount of fruit and vegetables grown on-site, small area of contamination, etc. Let me know if you want more details. I can also estimate indoor and outdoor worker estimates too using site-specific values.

<http://epa-prgs.ornl.gov/radionuclides/>

So, I'm guessing that even at 1.5E-3 that the risk is probably serious enough for prudent, protective measures to be taken in the short term rather than waiting for six months or more for the PRP search to fund the clean-up.

Chuck Hooper
Radiation Safety Officer
US EPA, Region 7
901 North 5th Street
Kansas City, Kansas 66101
(913) 551-7271 office
Hooper.CharlesA@epa.gov
Randy Schademann/SUPR/R7/USEPA/US

Randy
Schademann/SUPR/R7/USE
PA/US
06/02/2009 10:29 AM

To CharlesA Hooper/R7/USEPA/US@EPA, Michael
Beringer/R7/USEPA/US@EPA
cc

Subject Fw: Ra-226 results for 920 S. St. Francis Street

This is from the site we discussed almost a month ago. I'm developing an action memo and I think we discussed placing a sentence or two within that document for a mini health risk assessment.

30098949



Superfund

Randy

----- Forwarded by Randy Schademann/SUPR/R7/USEPA/US on 06/02/2009 10:27 AM -----



"Monnig, Rob"
<rob.monnig@ttemi.com>
06/02/2009 10:21 AM

To Randy Schademann/SUPR/R7/USEPA/US@EPA
cc

Subject Ra-226 results for 920 S. St. Francis Street

Randy,

Just got the analytical back for 920 St. St Francis Street samples. The four samples ranged from 11.3 to 495 pCi/g for Ra-226.

Colin is working on the figure. I will have him add the samples results to the figure.

Rob Monnig, PE | Chemical Engineer
Direct: 816.412.1775 | Main: 816.412.1741 | Fax: 816.410.1748
rob.monnig@ttemi.com

Tetra Tech | Kansas City Operations | 415 Oak Street | Kansas City, MO 64106 | www.tetratech.com **Complex World, Clear Solutions™**



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Analytical Report - 920 S St Francis.pdf



June 01, 2009

Mr. Robert Monnig
Tetra Tech EM Inc.
415 Oak Street
Kansas City, Missouri 64106

Re: Standard Products -Ra226
Work Order: 229665

Dear Mr. Monnig,

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 12, 2009. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4297.

Sincerely,

Amanda Rasco
Project Manager

Purchase Order: 1048525
Enclosures

[illegible]

SAMPLE RECEIPT & REVIEW FORM

Client: <u>TETR</u>		SDG/ARCO/Work Order: <u>229665</u>	
Received By: <u>Ricky Albee</u>		Date Received: <u>5/13/09</u>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Maximum Counts Observed*: <u>4400 cpm ~0.5 uRm/h</u>
Classified Radioactive II or III by RSO?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
COC/Samples marked containing PCBs?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hazard Class Shipped: <u>7</u> UN#: <u>2910</u>
Samples identified as Foreign Soil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: seals broken damaged container leaking container other (describe)
2	Samples requiring cold preservation within 0 ≤ 6 deg. C?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ice bags blue ice dry ice <u>none</u> other (describe) <u>20"</u>
3	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: seals broken damaged container leaking container other (describe)
5	Samples requiring chemical preservation at proper pH?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
7	Are Encore containers present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
11	Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Comments: Felt 8682 9804 4046

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis Report for

TETR027 Tetra Tech Missouri Project

Client SDG: 229665 GEL Work Order: 229665

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Amanda Rasco.



Reviewed by

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis

Company Tetra Tech EM Inc
Address 415 Oak Street
Kansas City, Missouri 64106

Report Date: June 1, 2009

Contact: Mr Robert Monnig
Project **Standard Products –Ra226**

Client Sample ID: 920-01 0-6"
Sample ID: 229665001
Matrix: Soil
Collect Date: 05-MAY-09 09:35
Receive Date: 12-MAY-09
Collector: Client

Project: TETR02701
Client ID: TETR027

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
<i>Gamma, Ra226, Solid "Dry Weight Corrected"</i>												
Radium-226		11.3	+/-0.829	0.0695	0.500	pCi/g		MJH1	05/25/09	1623	867489	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	05/14/09	0833	866847

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4 5.2 3	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis

Company Tetra Tech EM Inc.
Address : 415 Oak Street
Kansas City, Missouri 64106

Report Date June 1, 2009

Contact: Mr Robert Monnig
Project Standard Products –Ra226

Client Sample ID: 920-01 6-12"
Sample ID: 229665002
Matrix: Soil
Collect Date: 05-MAY-09 09:45
Receive Date: 12-MAY-09
Collector: Client

Project: TETR02701
Client ID: TETR027

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
<i>Gamma, Ra226, Solid "Dry Weight Corrected"</i>												
Radium-226		52.4	+/-4 24	0.112	0.500	pCi/g		MJH1	05/25/09	1623	867489	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	05/14/09	0833	866847

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2 3	

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis

Company : Tetra Tech EM Inc.
Address : 415 Oak Street
Kansas City, Missouri 64106

Report Date: June 1, 2009

Contact : Mr. Robert Monnig
Project : **Standard Products –Ra226**

Client Sample ID: 920-02 0-6"
Sample ID: 229665003
Matrix: Soil
Collect Date: 05-MAY-09 09:55
Receive Date: 12-MAY-09
Collector: Client

Project: TETR02701
Client ID: TETR027

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
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Rad Gamma Spec Analysis

Gamma, Ra226, Solid "Dry Weight Corrected"

Radium-226		495	+/-39.6	0.815	0.500	pCi/g		MJH1	05/26/09	0632	867489	I
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	05/14/09	0833	866847

The following Analytical Methods were performed

Method	Description	Analyst Comments
I	EML HASL 300, 4.5.2.3	

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2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

Certificate of Analysis

Company : Tetra Tech EM Inc
Address : 415 Oak Street
Kansas City, Missouri 64106

Report Date: June 1, 2009

Contact: Mr. Robert Monnig
Project: Standard Products –Ra226

Client Sample ID: 920-02 6-12"
Sample ID: 229665004
Matrix: Soil
Collect Date: 05-MAY-09 10:05
Receive Date: 12-MAY-09
Collector: Client

Project: TETR02701
Client ID: TETR027

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
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Rad Gamma Spec Analysis

Gamma, Ra226, Solid "Dry Weight Corrected"

Radium-226		271	+/-21.3	0.614	0.500	pCi/g		MJH1	05/26/09	0633	867489	I
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The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	05/14/09	0833	866847

The following Analytical Methods were performed

Method	Description	Analyst Comments
I	EML HASL 300, 4 5 2 3	

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QC Summary

Report Date: June 1, 2009
Page 1 of 2

Tetra Tech EM Inc.
415 Oak Street
Kansas City, Missouri
Contact: Mr. Robert Monnig

Workorder: 229665

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	867489										
QC1201838946	229665001	DUP									
Radium-226		11.3		10.1	pCi/g	11.0		(0% - 20%)	MJH1	05/26/09	06:36
		+/-0.829		+/-0.918							
QC1201838947	LCS										
Americium-241	16.3			14.6	pCi/g		89.5	(75%-125%)		05/26/09	06:40
				+/-1.09							
Cesium-137	5.79			6.42	pCi/g		111	(75%-125%)			
				+/-0.579							
Cobalt-60	7.22			7.66	pCi/g		106	(75%-125%)			
				+/-0.630							
Radium-226				0.950	pCi/g			(75%-125%)			
				+/-0.375							
QC1201838945	MB										
Radium-226			U	0.023	pCi/g					05/26/09	06:35
				+/-0.0701							

Notes:

The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD

GEL LABORATORIES LLC

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QC Summary

Workorder: 229665

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
UI	Gamma Spectroscopy--Uncertain identification										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	QC Samples were not spiked with this compound										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry										
h	Preparation or preservation holding time was exceeded										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

* Indicates that a Quality Control parameter was not within specifications

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

List of current GEL Certifications as of 01 June 2009

State	Certification
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California – NELAP	01151CA
Colorado	GEL
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA Region 5	WG-15J
Florida – NELAP	E87156
Georgia	E87156 (FL/NELAP)
Georgia DW	967
Hawaii	N/A
ISO 17025	2567.01
Idaho	SC00012
Illinois – NELAP	200029
Indiana	C-SC-01
Kansas – NELAP	E-10332
Kentucky	90129
Louisiana – NELAP	03046
Maryland	270
Massachusetts	M-SC012
Nevada	SC00012
New Jersey – NELAP	SC002
New Mexico	FL NELAP E87156
New York – NELAP	11501
North Carolina	233
North Carolina DW	45709
Oklahoma	9904
Pennsylvania – NELAP	68-00485
South Carolina	10120001/10120002
Tennessee	TN 02934
Texas – NELAP	T104704235-07B-TX
U S Dept of Agriculture	S-52597
Utah – NELAP	GEL
Vermont	VT87156
Virginia	00151
Washington	C1641